

facts which had happened several years before, and to which he had never seemed to pay attention. The delirium lasted till night, when it was succeeded by deep coma. He died at five o'clock on the following morning.—*Monthly Journ. Med. Sci. from Gaz. des Hôp.* Aug. 27.

31. *Hydrophobia Five Years after the Bite—Death—Autopsy.*—[Though we confess our incredulity of the possibility of the incubation of hydrophobia being prolonged for five years, we copy the following case, as it is a curious one, and it presents a fair view of the opinions of various authorities in regard to that point.]

The feature of greatest interest in the following case is the unusually long interval which elapsed between the infliction of the dog's bite and the outbreak of the symptoms. Before entering upon it, therefore, it may be well to glance at the facts and opinions previously recorded in respect to the possible length of incubation in the disease in question. Although, probably, the views entertained by the bulk of the Profession tend strongly in an opposite direction, yet there is on record a very large body of evidence in favour of the opinion that the incubation stage of hydrophobia may be prolonged over a series not only of months, but of many years—in fact, indefinitely. Romberg, in his work on "Diseases of the Nervous System," says: "An analysis of sixty authentic observations has shown that the shortest interval between the introduction of the poison and the appearance of the disease is fifteen days, the longest from seven to nine months, and that the average period is from four to seven weeks." Out of thirteen persons who were bitten in one day, by a mad wolf, and whose cases are described by Trollet, the disease appeared in 1 between the 13th and 30th day, in 4 between the 30th and 40th, in two between the 40th and 53d, and in 1 three months and a half after the bite. Lenhossek mentions two patients who were attacked respectively 6 and 9 months after the infection. Dr. Meade mentions an interval of 11 months, Bossiere of a year, and Nourse of 19 months. Dr. Hamilton considers 19 months, and Dr. Hunter 17 months, to be the longest intervals worthy of credit. Dr. Levin, in his "History of Diseases Transmissible from Domestic Animals to the Human Race," states, that the incubation period of hydrophobia may be only a few hours, or may be extended to many years. Dr. J. Hassinger has recorded a fatal case in the *Transactions of the Vienna Medical Association*, in which the disease appeared two years after the bite. A very carefully sifted case has been published by Dr. Bardsley, of Manchester, in which it seemed certain that no less a space than twelve years had passed since the accident. In many of these almost incredible cases, it appears certain that the affection possessed all the symptoms of hydrophobia; and as it is admitted by almost universal consent, that the disease never occurs spontaneously in the human subject, there is but one other source of fallacy to which we can turn. That source is the possibility of a more recent infection having occurred than the one mentioned by the patient. A severe dog-bite, it is allowed, is an occurrence not very soon forgotten; but then it must be borne in mind that a bite is not necessary to the production of the disease, and that a mere lick on an abraded surface will amply suffice. Mr. Lawrence mentions the following: "The Hon. Mrs. Duff had a French poodle, of which she was very fond, and which she was in the habit of allowing to lick her face. She had a small pimple on her chin, of which she had rubbed off the top, and, allowing the dog to indulge in his usual caresses, he licked this pimple, of which the surface was exposed, and thus she acquired hydrophobia, of which she died." Here, then, is a source of contagion to which most individuals are more or less unconsciously exposed, and it is very possible that some of the supposed cases of extraordinarily delayed outbreak may be thus explained. There is one, however, which cannot be so dismissed, and which occurred under the exact circumstances requisite to afford an almost incontestable proof of the phenomenon alluded to. It is that published by Mr. Hale Thompson, in Vol. I. of the *Lancet*. The subject of it, a lad, aged 18, had been twenty-five months in close confinement in prison, and during that time had never been exposed to the bite of any animal. He had been bitten severely by a dog seven years before in the right hip, and the scar still remained. During the whole

period he was under observation, he was sullen, gloomy, and reserved, and was never known to look the person in the face to whom he spoke. Death occurred after a three days' illness, during which "the most decided symptoms of hydrophobia were manifested." In this case, as in the one we are about to record, great pain was complained of at the seat of injury. Observations such as the above must, we think, be held to make it extremely probable that the period of incubation in hydrophobia is quite an indefinite one, and that, in the following case, the history given might be fairly accepted as explanatory of the occurrence of the disease.

Thomas Spink, a very muscular young man, aged 19, was admitted into Guy's Hospital, under the care of Dr. Hughes, on the evening of Monday, May 15. A message had been sent previously, by the Surgeon in attendance, requesting that some one would come to his house, in order to administer chloroform, previous to his removal to the Hospital, as the spasms were so violent that he thought great difficulty would otherwise attend the attempt. A dresser accordingly went to the patient's house for that purpose; but, finding that the chloroform seemed only to excite him, its exhibition was desisted from. During the journey, which was only a short one, every breath of air appeared to excite the most violent spasm about the throat. On arriving at the Hospital, at half-past nine in the evening, the man was seen by Mr. Stocker, the Resident Medical Officer, and subsequently by Dr. Hughes and Dr. Gull. The latter gentleman took a great interest in the case, and stayed with the patient during most of the time he was under care; and in compiling the following, we had the benefit of some remarks upon it made by him on the following day. At first sight there was a wildness about the patient's expression, and an appearance of terror and alarm, which those who had ever before seen a case of hydrophobia could not mistake. The least breath of air threw him into a violent paroxysm of spasm, which appeared mainly to affect the pharynx, but in which the head was also thrown back, and there seemed some tendency to opisthotonos. His conversation was generally wild and incoherent; but he could, when more quiet, answer questions, and stated his age and name, but, as it was afterwards found, not quite correctly. He complained of much pain in the left leg, and immediately below the knee, on that side, was the scar of an old bite. There was no lockjaw whatever; but, although he appeared very thirsty, and anxiously attempted to drink, yet he could not swallow a drop of fluid, violent spasm being immediately produced by the attempt. There was much adhesive and frothy saliva about his mouth, which he was constantly engaged in the attempt to spit out. Gasping eructations frequently occurred, but there was no actual vomiting. He was in the greatest alarm, and appeared from his expressions to be in fear that it was intended to murder him. Respiration was constantly attended by sighing efforts, and almost by shuddering; his condition in this respect much reminding the bystanders of that induced by a sudden plunge up to the neck in cold water. At first, it was not thought necessary to confine him, but afterwards it became needful to do so, as on one occasion, watching his opportunity, he had thrown himself out of bed, and sprung violently against a window which was near. After this, his arms were tied down to the sides of the bed. His pulse was rapid, and subject to sudden alterations in frequency, varying in the course of a few minutes from 100 to 130; the skin was warm and moist, and the pupils widely dilated.

The remedy first tried was the Indian hemp, the extract of which (obtained fresh from Squires's), in the enormous dose of ten grains, was exhibited by injection into the rectum. The first quantity was almost immediately expelled, but the second was retained. It appeared, however, to exert not the slightest effect in controlling the tendency to spasm. The paroxysms continued to recur almost constantly, and were induced by the slightest causes. At about two o'clock A. M. it was decided to exhibit chloroform. The man resisted the attempts to make him inhale it, tossed his head about (he was strapped down), and even made an effort to bite the hand of the administrator. The first effect was to excite and render the paroxysms much more violent and constant; as insensibility was induced, however, the tendency to spasm subsided, and ultimately the patient lay quite quiet. It was noticed that his pupils, which pre-

viously had been widely dilated, contracted when under the influence of the chloroform. The inhaler being removed, it was found that the effect of the anæsthetic was never prolonged more than a few minutes at a time, after which the spasms again began to occur. With short intermissions, the patient was kept under the influence of the remedy for more than an hour, when, on account of the extreme collapse, it was deemed necessary to suspend it. The pulse was now not perceptible at the wrist, and the surface was cool and clammy. After the chloroform was laid aside, some returns of spasm took place, but not violently; the pulse never became perceptible, and the patient, after gradually sinking, died about a quarter to four A. M. A few hours previous to death, there had been noticed some emphysema of the cellular tissue in the root of the neck, caused, no doubt, by rupture of the trachea or some part of the larger bronchial tubes during spasmodic closure of the glottis.

Of the numerous observers who witnessed the symptoms just described, there were none, we believe, who felt any doubt as to the name by which the disease should be designated. As distinguishing it from mania, there were the attacks of spasm, the great susceptibility of the external surface to impressions, and the incapability of swallowing fluids. The delirium was one of terror and extreme fear, very distinct from the fierce and violent raving usually present in phrenitis. From tetanus, its difference was not less well marked. There was neither trismus, rigidity of the abdomen, or tonic spasm of muscles, nor did the paroxysmal attacks involve the muscles of the extremities. In tetanus, the intellect is almost invariably clear to the end; here, it was clouded by delusions of a peculiar and pathognomonic character. The *post-mortem* examination was performed on the following morning by Dr. Habershon, and was productive of little more than negative results. Having briefly specified them, we will next give the history of the case previous to admission into the hospital. As much of the interest of the narrative depends upon the degree of confidence which may be placed in the history, we may state that its facts were ascertained by Dr. Gull from the father of the patient by a very careful cross-examination, and that they obtained the full credence of that physician.

Autopsy, twelve hours after death.—There was great *post-mortem* rigidity, all the muscles being hard. With the exception of the hands, which were rigidly flexed, there was no distortion of any of the extremities. On opening the head, the veins or the meninges were found full of blood, and the brain substance itself presented a little more of vascularity than is seen in the average of examinations. The whole of the pharynx was deeply congested, and of a slight bluish tinge; the boundary of the congestion was definite, and terminated at the commencement of the œsophagus. The tonsils were of usual size. The left side of the heart was firmly contracted, and the blood was universally fluid. The posterior parts of the lungs were loaded with blood, and some parts presented the characters of incipient lobular pneumonia. There was interlobular emphysema about the root of the left lung. The cord was taken out, but, with the exception of some very questionable softening of a part in the middle dorsal region, it presented nothing morbid. Beyond general congestion of the abdominal and thoracic viscera, distension of the intestines with gas, and a dry condition of the peritoneal surface, no other departures from the healthy condition were observed. The surface of the corpse was carefully examined for any traces of recent wounds or abrasions, but none were discovered.

Previous history of the case.—The father of the young man was by trade a bricklayer, and his son had worked partly with him and partly as a “tumbler” at fairs. Five or six years ago, the boy, then aged about 13, had been severely bitten in the left leg by a strange pointer bitch. The dog had puppies at the time, and the occurrence took place in the road.¹ The father of the boy witnessed the occurrence, and remembered it well, because he had afterwards to dress the injured part. Nothing whatever was known as to the history of the

¹ As no history of the dog could be got at in this case, it may be worth noticing, that during the few weeks immediately subsequent to parturition, dogs are, according to the observations of Youatt, peculiarly liable to madness.

dog. After the wound had healed, the boy never again complained of it, and he manifested no alteration in temper or manner. He was usually of quiet habits, and not much addicted to drink. He had always lived at home, and the father felt certain he should have known if any bite, wound, or other injury had occurred to him since the one mentioned. He had enjoyed excellent health, in every respect, until Friday, the third day previous to his admission. On the afternoon of that day (he had been staying at home, being out of work,) he went to sleep, and woke up in the evening, appearing disturbed, and stating that he had a very bad dream. He afterwards took some tea, and then went out for awhile. At night, he complained of a severe headache. On Saturday, he still complained of not being well, but, in the afternoon, walked with his father a distance of some miles, to "tumble" at a neighbouring village. Late in the evening, he commenced the practice of his evolutions, but, after having stood once on his head, complained that it had hurt him so that he must give it up. During the walk home, his father noticed that his limbs seemed weak, and the journey took them many hours. Throughout Sunday he stayed in the house, still complaining of "splitting headache," and appearing very ill. He could, however, swallow fairly, and had no noticeable difficulty in doing so. Late in the evening he got up, and went alone to a neighbouring public-house to get some beer, which he drank, but, as the landlady who served him afterwards stated, with the greatest difficulty, as "it seemed as if it would have choked him." On Monday morning he said he could not drink, and took only a little sopped biscuit, which he appeared scarcely able to get down. In the afternoon of that day the attacks of spasm began to occur. He exhibited the greatest terror of some impending mischief, although perfectly conscious. A medical man who had been sent for entering the room, he begged him not to approach, as he could not, he said, help striking him if he did. These symptoms becoming rapidly aggravated, he was, as we have already seen, conveyed to the hospital late in the evening.

Having already entered so fully on the incubation question, we have not much to add in the shape of comment on the above. The premonitory symptoms of the outbreak, the duration of the attack, and the nature of the illness, presented nothing different from the ordinary course of hydrophobia. It is worthy of note, that the lad had manifested no form of nervous disease whatever during the long interval subsequent to the bite. The fatal attack could not in any way be attributed to fear or apprehension, since he did not appear to have in the least anticipated any ill consequences from his accident. The effect of the chloroform inhalation would seem to have been almost precisely similar to that which we have noted in many of the more acute cases of tetanus, which have been mentioned in the series we are at present engaged on. The drug was efficient in allaying the morbid irritability, and in completely controlling the tendency to spasm, but exercised no preventive influence. Its effects rapidly passed off when inhalation was relinquished, and the vital powers of the patient failed as fast as they could have been expected to do had it not been used.—*Med. Times and Gaz.* May 27, 1854.

32. *Morbid Changes in the Mucous Membrane of the Stomach.*—Dr. HANFIELD JONES read a paper on this subject before the Royal Medical and Chirurgical Society, May 23, 1854. The first part of this communication comprised a description more particularly of the minute glandular structure of the mucous membrane of the stomach, in which the author corroborated the account given by Kölliker. On first commencing his researches into this subject, he was not aware that lenticular or solitary glands had been seen in the mucous membrane of this viscus. The author, not imagining they could be normal structures, had at first viewed them as simply nuclear deposits, supposing they were of new formation. Kölliker had observed that these lenticular glands did not constantly occur in the stomach of adults, even though they might be possibly always present in those of children. In very many cases he had met with no traces of them: in others they were seen to be extremely numerous, covering the whole surface of the stomach; yet the thought could hardly be excluded, that the morbid conditions of the part, which were always present, had not had